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February 23, 1999

97-137

BY HAND DELIVERY

Ms. Magalie R. Salas
Secretary
Federal Communications Commission
The Portals
445 Twelfth Street, S. W.
Washington, D.C. 20554

Re: Notice of Ex Parte Communication in Application of SBC - Oklahoma, CC Docket No. 97-121

Application of Bell South - Louisiana, II, CC Docket No. 98-121

Application of BellSouth - South Carolina, CC Docket No. 97-208

Application of Ameritech - Michigan, CC Docket No. 97-137

Allegiance Telecom Petition, RM 9474

OSS Model Rules, CC Docket No. 98-56

Dear Ms. Salas:

Yesterday, on behalf of the Competitive Telecommunications Association/America's Carriers Telecommunications Association ("CompTel"), the undersigned of Hogan and Hartson L.L.P.; Carol Ann Bischoff, Executive Vice President and General Counsel, CompTel; Jerry James, Chairman, CompTel, and Executive Vice President of Government Affairs and Business Development, Thriftycall/Golden Harbor; and Foster McDonald, President, ITC Deltacom; met

with Jonathan Reel, Daniel Shiman, David Kirschner, Jake Jennings, Claudia Fox, and Andrea Kearney, of the Policy and Program Planning Division, Common Carrier Bureau; and met separately with Tom Power, Legal Advisor to Chairman William Kennard.

The purpose of the meetings was to discuss the difficulties that these and other CompTel member companies have been having in obtaining nondiscriminatory access to interconnection and network elements, including access to nondiscriminatory, automated operations support systems. As an example, the delays and errors in provisioning and other problems experienced with BellSouth by ITC Deltacom were described, as illustrated by the attached handout. As another example, Thriftycall described the delays it has experienced due to the frequent lack of availability of interconnection trunks, and the insistence by some ILECs on the use of inefficient one-way trunking facilities. CompTel also discussed difficulties its members have had in negotiating agreements with ILECs and in exercising their pick-and-choose rights.

CompTel emphasized the need for ILECs to make a commitment to serve its carrier customers well. Better and more comprehensive training efforts, and systemwide changes to accommodate the ILECs' role as a wholesale provider, are necessary. CompTel also emphasized the need for strong FCC enforcement efforts.

CompTel supported the adoption of detailed performance standards to ensure that ILECs will not treat competitors in a discriminatory manner vis-a-vis their own retail customers. CompTel urged the Commission to ensure that before a BOC is granted interLATA authority, it has made the transition from a retail-only company to a wholesale-and-retail company that values its carrier customers as much as it values its end user customers. CompTel supported the need to have strict rules to guard against backsliding by the RBOCs once they have interLATA authority.

CompTel also distributed the attached CompTel/ACTA White Paper titled "Evaluating OSS Availability: A Blueprint for Third Party Testing." CompTel supported the need for third party testing of operations support systems, but also emphasized the need to demonstrate that actual provisioning of service to real customers, at commercial volumes, is essential to show compliance with Section 251(c)(3) and with the Section 271 competitive checklist.

I have hereby submitted two copies of this notice to the Secretary, as required by the Commission's rules. Please return a date-stamped copy of the enclosed (copy provided).

Please contact the undersigned if you have any questions.

Respectfully submitted,

Linda L. Oliver
Counsel for CompTel

Enclosures

cc: Jonathan Reel
Daniel Shiman
David Kirschner
Jake E. Jennings
Claudia Fox
Andrea Kearney
Tom Power

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CompTel/ACTA

Evaluating OSS Availability:

A Blueprint for Third Party Testing

White Paper No. 3

February 1999

CompTel/ACTA

Evaluating OSS Availability:

A Blueprint for Third Party Testing

(CompTel/ACTA White Paper No. 3)

Written by Robert Falcone and Joseph Gillan

This white paper is sponsored by the Competitive Telecommunications Association/ACTA ("CompTel"). CompTel is a national industry association representing a broad spectrum of members pursuing a variety of strategies to compete in the local, long distance and information services markets. Of paramount interest to CompTel and its members is assuring that the conditions for competition exist across the entire market, bringing the benefits of competition to residential and business consumers throughout the nation.

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Evaluating OSS Availability:
A Blueprint for Third Party Testing

Table of Contents

I. Introduction

The Telecommunications Act of 1996 was designed to promote a robustly competitive telecommunications marketplace. Key to achieving this environment are the Act's provisions requiring access to the incumbent local exchange network on nondiscriminatory terms to any requesting carrier. For the theoretical promise of nondiscriminatory access to become a practical reality, however, requires that new operations support systems (OSS) and interfaces be implemented to support local competition.

In the paper that follows, CompTel/ACTA ("CompTel") outlines a basic blueprint that a state commission can use to develop a "third party" test to evaluate whether an incumbent local exchange carrier (ILEC) has implemented nondiscriminatory access to its OSS. This blueprint has been designed to ensure that the third party test will comprehensively address the entire OSS process. For an OSS test to produce meaningful results requires that it duplicate many of the same steps that a competitor would take to enter the market. Such a comprehensive approach, however, is the only way to assure that the ILEC's OSS are working properly *before* they are applied in market conditions where failures may permanently affect customer perceptions of competitive services and providers.

An independent third party test may also be useful to a commission's evaluation of an ILEC's compliance with its obligations under the Telecommunications Act. Although a third party test can provide a *static* measure of the ILEC's compliance with the Act, it is CompTel's view that the only true test that an ILEC's systems and processes are nondiscriminatory is *actual* commercial usage with a result of vibrant local competition. The most valuable purpose for a third party test is as a step in the process to *create* a working OSS capable of supporting widespread local competition.

As discussed in detail below, nondiscriminatory OSS are an undeniable prerequisite to widespread local competition and realizing the full promise of the Telecommunications Act. With the future of competition at stake, it is important that the industry and regulators devote the time and the resources it will take to make sure that OSS are nondiscriminatory in practice as well as theory. This paper outlines each of the major steps needed to establish a meaningful third party test, as well as suggests a set of guiding principles that should govern the overall approach. While each state should expect refinements to this framework from the collaborative efforts of the parties before it, the basic structure described herein will provide a solid foundation.

II. The Importance of Third Party Testing

Before turning to the specific details of designing a third party test of an ILEC's OSS, it is useful to first remember *why* the issue is so important. In the sections below, we review the critical role that OSS is expected to play in rapidly achieving the competitive full service marketplace envisioned by the Telecommunications Act. In addition, this section of the paper will outline the key principles that any valid third party test should satisfy. Finally, we caution that the controlled environment of a third party test should not be seen as a substitute for the only true test of an ILEC's OSS -- sustained commercial operation.

A. The Importance of Operations Support Systems

One of the most significant features of the Telecommunications Act is its process of *cross-entry* that can be expected to eliminate the distinction between "local" and "long distance" carriers. As long distance companies seek to offer local service, and as local companies add long distance service, a very different market structure will emerge. The central question whose answer will define this market structure is simple to state. Will the future "full service" market inherit the monopoly characteristics of today's local market, or will it resemble the competitive structure of today's long distance market?

The cross-entry provisions of the Act mean that every carrier must have an opportunity to win the customer's local and long distance business that is comparable to the opportunity that the ILEC will have to gain the *same* customer's local and long distance business. If the customer's choice of its *full service* carrier is distorted by a material disparity in the speed, reliability or cost of the decision, then tomorrow's full service market will simply become an extension of today's local monopoly. Because it would always be simpler for customers to make their local monopoly their full service choice, the ILECs would be able to extend their local dominance to the full service market.

The fundamental barrier to a competitive full service *end-point* is the disparate nature of the *starting* point. The long distance market is already competitive as the result of a decades-long effort to identify, develop, implement and refine the operational infrastructure needed to support a competitive long distance industry.[1] When the AT&T divestiture agreement was announced in 1982, the nation's exchange infrastructure was not designed to support a competitive long distance industry. The "OSS" needed to support long distance competition did

[1] Notably, this process included the divestiture of the local network from AT&T to assure that the companies that operated these networks had the appropriate *incentive* to implement nondiscriminatory systems.

not exist.[2] Divestiture (and the Federal Communications Commission (FCC) rules that followed it) fostered long distance competition by requiring, among other things, that new operational systems be developed and deployed.[3] The long distance industry shows that making such changes is feasible. In 1996, over 53 million customers changed their long-distance carrier, many within 24 hours of making the decision.[4]

The highly developed state of the OSS that support long distance competition -- compared to the primitive OSS that have thus far been deployed to support local competition -- create asymmetrical conditions for full service competition that dramatically favor the ILECs. The competitive situation in Connecticut foreshadows the powerful effect of one-stop shopping in combination with disparate entry barriers. In Connecticut, the incumbent local carrier, Southern New England Telephone Company (SNET) was able to provide long distance service -- and, therefore, become a full service provider -- without first providing other carriers with

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[2] Unless the customer dialed a special access code, switches routed long distance calls to a single network; billing systems supported end-user (not carrier) billing; and the systems to order, provision and bill access service were not yet established.

[3] For instance, new switch software and ordering and billing systems were developed to support a multi-vendor environment. Most notable was the deployment of "equal access" software in the switches that permitted each individual customer to select a preferred interexchange carrier. This software preserved for consumers the convenience of established dialing patterns (1+ for instance) no matter which carrier provided the service.

[4] 1997 TAF Report, THE YANKEE GROUP (December 1997).

nondiscriminatory access to the local network. As a result, SNET achieved a 40% share of the interLATA long distance market,[5] while local competitors gained roughly 1% of the local exchange market.[6] The result is that SNET could roughly achieve a 98% share of the "full service" market.[7] The SNET example illustrates how the asymmetrical barriers affecting local (as opposed to long distance) entry can enable an ILEC to extend its market dominance to the full service market of the future.[8]

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[5] Merrill Lynch, Comment on Southern New England Telecommunications Company, January 29, 1998.

[6] Janney Montgomery Scott, Southern New England Telecommunications Company, July 3, 1997.

[7] SNET's 98% share is calculated by assuming that the full service "market" is today defined by the 40% of the market that have chosen SNET as their long distance carrier and the 1% that have chosen another carrier for local service. Therefore, SNET's share of the full service market is 40/41, or 98%. Although it is possible that some fraction of SNET's long distance customers selected a different carrier for local service -- or that some portion of the end users that have chosen a competitor as their local carrier obtain long distance service elsewhere -- such split decisions are unlikely and would not materially affect the share calculation.

[8] SNET's market position is further complicated by a structure unique to Connecticut where SNET participates in the retail market through a wholly-owned subsidiary. Although local customers are scheduled for balloting in Connecticut, this will not reduce SNET's dominance since the only OSS capable of supporting competition is limited to service-resale. Service-resale inherently discriminates in favor of an ILEC's affiliate because, unlike other carriers, only a wholly-owned affiliate is immune to the inadequacy of a wholesale discount, is indifferent to the ILEC's access monopoly, and is unaffected by its inability to differentiate its products from those of the ILEC. Clearly, these issues are beyond the limited scope of this paper. The lesson from Connecticut is simply that ILECs are positioned to dominate the full service market in a manner that no other entrant can diminish unless it obtains nondiscriminatory access to network elements using OSS that is equivalent to the OSS the ILEC uses to provide service.

The above discussion demonstrates the very practical importance of achieving the nondiscriminatory access that lies at the heart of the Act. There is broad consensus that full service packages will dominate the market in the future. But full service *competition* is only possible if all carriers have an opportunity to offer packages with the same convenience as the incumbent. Nondiscriminatory OSS is the key to this result.

B. Principles That Should Guide Third Party Testing

Given the critical importance of nondiscriminatory OSS to a competitive full service environment, it is vital that regulators have a complete basis upon which to judge the adequacy of an ILEC's systems. Just as importantly, however, is the role that a meaningful third party test can play in the process of designing new OSS arrangements. While an ILEC may view the third-party testing process as a means to validate the satisfaction of its legal obligations, entrants stand to benefit from a thorough test of the ILEC's systems before their customers' orders are placed at risk.

The only true test of an ILEC's OSS is the observed presence of a functioning competitive market. That is, are there commercial volumes of carrier-orders that are being processed on a

nondiscriminatory basis?[9] However, it is as a step in *accomplishing* the difficult process of providing nondiscriminatory access that a third-party test is most important to the entrant. Systems that are unreliable will only lead to frustration and failure in the marketplace for the entrant and its customers. The introduction of an independent third party to test these systems — and to mediate the inevitable problems that will arise — is a useful addition to the process of systems-development.

Before turning to the more detailed specifics, there are a number of guiding principles that should be kept in mind as the technical aspects of a test are developed:

The goal is commercial volume. Operations support systems are important because they provide access to the basic infrastructure of competition: interconnection, number portability, network elements and resold services. The goal must be a *practical* ability to process and support *commercial* volumes of competitively-provided local services. The most reasonable measure of commercial volume is the level of PIC-changes.[10] This level is appropriate because it

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[9] One method to achieve nondiscriminatory access to an ILEC's network would be a structural solution that required that the ILEC compete through a separate affiliate whose independence is assured through substantial public ownership. It is beyond the scope of this paper, however, to address the relative merits of such an approach.

[10] The acronym PIC refers to the customer's "presubscribed interexchange carrier." This is the long distance company that a customer has predesignated to receive all long distance calls originated using the familiar "1+" dialing pattern.

reflects a known measure of consumer interest in carrier choice (albeit, long distance carrier choice) and because it is a measure of the efficiency of the systems that the ILEC will use to migrate customers from their existing long distance providers. Therefore, to satisfy historical patterns of customer migration, and to provide an equitable opportunity for both local and long distance companies to succeed in a full service marketplace, OSS should be able to accommodate commercial volumes of network elements at the scale of the PIC-change process.

Never place the cart before the horse. Before a Commission can determine *whether* an ILEC has implemented nondiscriminatory OSS, there must first be agreement as to *what* precisely the ILEC is required to offer. The Supreme Court has recently affirmed the FCC's interpretation that gave broad effect to the term "network element,"[11] as well as the FCC's rules that require the ILECs to provide entrants with network elements in their combined form.[12] Although the Court's decision does require that the FCC readdress its *minimum* list of network

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[11] AT&T Corporation v. Iowa Utilities Board, Nos. 97-826, et a;., slip op. at 19-20 (U.S. January 25, 1999).

[12] *Id.* at 26-28. CompTel has previously discussed the importance of network element combinations to widespread competition. See: Broadening the Base: The Importance of Network Element Combinations to Achieving Widespread Competition, CompTel White Paper No.1, July, 1998. In addition, CompTel has addressed where (and how) an ILEC should provision individual network elements for connection to a competitor's network: Uncaging Competition: Reforming Collocation for the 21st Century, CompTel White Paper No. 2, October, 1998.

elements,[13] state commissions should establish third party tests of at *least* the basic network elements specifically required of the Regional Bell Operating Companies (RBOCs) in the competitive checklist,[14] as well as logical combinations that will be requested by CLECs.[15] As commissions identify additional network elements, they should be incorporated into the third party test plan as well.

Test the complete entry cycle. The need for nondiscriminatory access does not begin at the point a service is first offered, a customer is won or when dial tone is first drawn from a competitors' switch (or network element). The foundation for competition begins earlier, when a competitive local exchange carrier (CLEC) first designs its internal systems to interface with the OSS of the ILEC. Third party testing should similarly begin at the source of a nondiscriminatory system, by determining whether the ILEC's documentation is sufficient to design and implement the CLECs' systems and interfaces needed to compete. A testing program that only considers

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[13] *Id.* at 20, 25.

[14] Section 271(2)(B) specifically lists a number of network elements that RBOCs must provide before they may offer long distance services originating in their respective regions. Among these mandated elements are loops, local switching, and transport, as well as access to directory assistance, operator services, and the databases and signalling necessary for call routing and completion. 47 U.S.C. § 271(c)(2)(B).

[15] For instance, commissions should expect that CLECs will request access to the "platform" combination that includes loop, switching and shared transport, as well as the "extended link" that combines loops with transport.

whether the ILEC can *handle* transactions, but then ignores whether the information is available for any CLEC to *initiate* the transaction, is so fundamentally incomplete as to be irrelevant.

The test must be comprehensive. Local competition is not a "one size fits all" proposition. Different entrants, at different times, have different requirements. Significantly, however, the obligation to provide nondiscriminatory OSS extends across the *full* range of entry options, including network elements (individually and in combination), resale, number portability and interconnection.

The third party OSS test should reflect the same entry diversity that can be expected to exist in the market. It should test the ILEC's ability to meet its obligations for each of the market entry options. These obligations include: ordering and provisioning requirements; the ability to render accurate bills to the CLEC, the ability to provide billing information so that the CLEC can render bills (retail, access and reciprocal compensation) to its customers, the ability to properly maintain and repair the elements purchased by the CLEC, and the ability to execute coordinated cut-overs with a minimum of customer outage.

It is not sufficient to find that only a subset of these obligations is satisfied. A fully functioning competitive market will require each, particularly as new entrants come (and some

go) and new services are introduced. The Act was intended to provide competitors with a broad menu of entry options so that the most choices, by the most carriers, would be available to consumers. This full menu will only be practically available, however, if each of the ILEC's key obligations are implemented.

To err is human, to correctly model error is divine. The central purpose of a third party test is to confirm that the OSS is working properly before actual customer orders, in commercial volumes, are processed. Significantly, it is just as important that OSS be able to process *incorrect* transactions as it is to handle transactions that are formed correctly. Mistakes are inevitable and it is critical that the OSS anticipate such errors and establish appropriate corrective mechanisms.[16] As a result, the third party test should systematically test both correct and intentionally incorrect transactions to determine the robustness of the systems to respond in a useful manner.

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[16] A useful analogy here is the difference in conventional instruction for driving a car and flying an airplane. When a student is instructed in driving a car, the emphasis is almost entirely on how the car should be driven *correctly* even though almost no emergency of note occurs because an automobile has been operated in this manner. In contrast, flight instruction spends little time on the correct operation of the aircraft. Rather, its focus is on the *recovery* from error, with the expectation that mistakes will occur and the appropriate response is what is most critical. The testing of OSS should similarly address how the OSS responds to mistakes, and not just whether the OSS can easily process of correct orders.

The future is as important as the past. As noted, one of the most important reasons to implement nondiscriminatory OSS is to handle the transition to full service *voice* competition. But its importance does not end there. A whole new wave of competitive activity is based on bringing advanced *data* services to consumers, and it is likely that voice and data will continue to converge in the eyes of consumers and the technologies used to serve them. As a result, the OSS test should be explicitly designed to address the unique needs of the data market, as well as more conventional voice arrangements.

Don't expect overnight results. It is important to appreciate that the Telecommunications Act of 1996 contemplates a fundamental restructuring of the telecommunications industry, assuring that *all* service providers have nondiscriminatory access to the ILEC's network in a manner comparable to the way the ILEC uses the network itself. Actually *achieving* this legal principle, however, is a complex undertaking.

Designing, implementing and debugging the systems needed to effect the restructuring contemplated by the Act is no simple exercise. Commissions should not be surprised if initial test results are unsatisfactory -- in fact, early failures should be *expected.* One of the most important objectives of the testing process is to identify and resolve these problems prior to declaring the systems available for commercial usage. Overall, commissions should anticipate

that the third party testing process will take some time and require a number of resources. But, the role of OSS is so fundamental to the competitive process that establishing a valid, reliable test must not be sacrificed to administrative expedience.

C. Third Party Testing and Market Experience

An unavoidable limitation of a third party test is that it is being conducted in a controlled environment. Because of its controlled nature, the ILEC has the opportunity to focus on each third party transaction with a level of effort and resource commitment that would not be sustainable in a fully competitive market. Regardless of whether the third party test involves actual working lines, or relies on facilities dedicated to the testing process, test resources cannot be supplied in enough quantity and with enough geographic diversity to truly replicate conditions in an open competitive marketplace.[17]

To partially correct for the controlled environment of the testing process, CompTel offers two suggestions. First, the third party test should systematically compare test performance

[17] For instance, even where actual troubles are inserted on the test lines, the relatively few number of practical opportunities to correct these troubles will prevent this from being a definitive test of the ILEC's repair capability.

metrics to similar measures actually experienced by CLECs during the test period.[18] By constantly comparing test results to parallel market experience, commissions can objectively evaluate whether the testing process is reliable.

Second, upon the successful completion of the third party test, the ILEC should still be required to collect data and provide reports for a period of at least four months to demonstrate that it is capable of meeting the demands of the competitive marketplace. It is only after the systems and processes have been tested under the stress of marketplace demands that a commission can make the assessment that the ILEC has truly and irreversibly opened its market to competition.

III. The Basic Steps to Conducting a Valid Third Party OSS Test

There are eight basic steps to establishing a third party test of an ILEC's OSS. These fundamental steps are:

1. Selecting the third party.
2. Building the interfaces necessary to process CLEC-to-ILEC transactions.

[18] For example, if every one of the third party's hot cuts and local number portability conversions is completed on schedule, while CLECs experienced problems with the same procedures during the test period, this may indicate that the ILEC treated the third party orders with special attention.

3. Assembling the resources needed to perform the test.

4. Defining the order types that will be processed.

5. Defining the maintenance, repair and emergency restoration scenarios.

6. Defining the billing requirements of the ILEC.

7. Conducting the test, including any needed retesting if corrections must be made by the ILEC during the test.

8. Comparing test results to ILEC performance measures.

If properly designed, conducting a third party test of an ILEC's OSS is no less complicated than entry itself, although it ought not take as long or be nearly as expensive as actual entry due to the fact that the systems need not be as large and robust as actual commercial systems, and are not connected into full back-end business systems as they would be for a CLEC. A valid third party test should mimic each of the critical steps of entry, from developing the interfaces needed by the CLEC through to the billing of the completed arrangement. The key to a successful test -- that is, a test which accurately validates that the OSS is nondiscriminatory and capable of commercial operation[19] -- requires patient analysis and cooperation between all affected parties. Specific considerations in each of the steps:

[19] It is important to stress that a third party test will only be able to determine if the ILEC's systems and processes are *potentially* capable of supporting a commercial environment. As discussed in the prior section, the only true test that an ILEC is *actually* able to support sustained commercial volumes is monitored experience in the market.

A. Selecting the Third Party

A successful third party test begins with the selection of a third party that has the basic skills and resources needed to conduct each aspect of the test. As important as the applicant's *initial* skill set, however, is the process established to *educate* the third party, including designing a testing approach that is open to the technical recommendations of actual entrants. The facts are that the industry itself is entering uncharted territory and no "independent" third party can be expected to have a complete understanding of the requirements of entry at the beginning of the testing process.[20] As a result, while the initial skill set is important, commissions should realistically expect that CLECs, ILECs and the commission's own staff will have to work closely to establish a meaningful test environment.[21]

The third party should have sufficient resources to assign project managers to the various aspects of the test. Project managers should be responsible for different functional areas. For instance, individual project managers could be assigned to:

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[20] While experience conducting a third party test in another state may be useful, prior experience should not be viewed as a substitute for a sound collaborative test-design process. As illustrated by Appendix A, no single state experience (to date) has included each of the features recommended by CompTel. As a result, even third parties with prior testing experience will need to work closely with other parties to develop the comprehensive test environment recommended here.

[21] Although the third party should have responsibility for developing the test plan, the final product itself should reflect the cumulative input of all stakeholders.

* establishing the third party's OSS interface;
* pre-ordering, ordering and provisioning transactions;
* coordinating activities with participating CLECs for hot cuts, local number portability and extended loops;
* maintenance and repair simulations;
* billing; and
* data collection and analysis.

Regardless of the responsibilities assigned to each individual project manager, the third party should also designate a project manager to oversee the various sub-tasks of the project, many of which are interdependent. This manager's role would be to ensure that each of the individual project managers coordinates with each other, to track the progress of the test against the test schedule, and to serve as a single point of contact.

B. Building Interfaces to Process CLEC-to-ILEC Transactions

It is not sufficient to test only whether an ILEC's OSS can *handle* orders, it is also important that the test validate that the ILEC's documentation is sufficiently clear to enable a CLEC to build the systems it will need to *initiate* orders on a commercial scale. After all, the fundamental purpose of the test is to confirm that the necessary infrastructure and processes are

in place to provide *any* CLEC with nondiscriminatory access to the ILEC's network, including CLECs that will enter in the future. This means that the ILEC must create systems that are able to process requests, as well as provide the information that CLECs need to establish their own interfaces with the ILEC's OSS.

To conduct a meaningful test, the third party should simulate as closely as possible the same procedure that a CLEC would go through to establish its interface. The third party should use the same systems-specification documentation that the ILEC supplies to CLECs in general. To test the adequacy of this information, the third party should only have access to the support than the ILEC routinely provides any CLEC. In this phase of the project, the third party should assess the following:

* How easy is it to understand and interpret the documentation provided by the ILEC?

* Is the ILEC's documentation accurate and reliable?

* Were any updates to correct problems provided expeditiously and fully documented?

* Was there a change control process to assure that all parties are adequately informed of changes to any documentation?

* Was the level of assistance provided to the third party adequate and is the same level of support available to all CLECs?

Once the interface is developed, the third party should go through the same systems-qualification assessment as any other CLEC. In cases where the qualification process is not documented before the third party test, the end-product of the test should be documentation that can be applied in the future.

In addition, the test should evaluate *all* of the system interfaces that the ILEC makes available to CLECs. Interfaces that need to be tested include (to the extent they are made available to CLECs):

* Graphic User Interfaces (GUI),[22]
* Electronic Data Interexchange (EDI) gateway interfaces,[23]

[22] The GUI is an interface designed for use by the CLECs through secured Internet access. Each CLEC is provided with security codes that allow them to access the ILEC's WEB-based pages for pre-ordering and ordering transactions.

[23] The EDI gateway is an interface using an agreed upon EDI protocol that allows the CLEC to interface with the ILEC's legacy systems for pre-ordering and ordering transactions through a gateway device.

* Access Service Request (ASR) interfaces,[24] and
* direct access to the ILEC's legacy systems.[25]

It is important that the third party determine which transactions flow-through the process and which require manual intervention for each of the above interfaces. A significant absence of flow-through capability will hamper CLECs' ability to compete effectively in a mass market environment.

This portion of the test should also include an assessment of the ILEC's OSS interface back-up and restoration process. The third party needs to determine the quality of the ILEC's system fault tolerance, restoration capabilities and back-up procedures in order to confirm that the interface is reliable. Finally, there should be a thorough assessment of the documentation

[24] The ASR interface uses the same batch processing interface that the interexchange carriers use to order access services from the ILECs.

[25] Direct access refers to the use of a proprietary interface that an ILEC may make available to provide CLECs with limited direct access to the ILEC's internal pre-ordering, ordering and provisioning systems.

that explains applicable transactional business rules,[26] as well as any other documentation (such as CLEC handbooks and training guides).

C. Assembling the Needed Test Resources

The third party test should be able to test the ILEC's ability to process orders through to completion and billing. Because of the wide range of possible order-types that must be tested, this effectively means that the third party should have access to (at a minimum) working collocation facilities, transmission facilities and switch ports to be able to confirm that the full range of potential orders can be processed correctly.

For instance, the third party will require access to a working non-ILEC local switch to allow it to test the ILEC's ability to perform local number portability conversions, extended loop arrangements and loop hot-cuts. The third party will also need collocated facilities to test the coordination and manual effort required to perform loop hot cuts.[27]

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[26] Transactional business rules are rules that the ILEC establishes to define acceptable values for each of the fields on the transactional forms that a CLEC will use to exchange information with the ILEC. For example, the ILEC may require that the CLEC's billing account contain eleven characters, with the first three being alpha and the remaining eight being numeric. Any other combination of characters in this field would lead to a rejection of that particular transaction by the ILEC.

[27] The third party may also require access to field locations outside the central office to test provisioning of sub-loop elements where sub-loop elements are available.

Obviously, an "independent" third party is not likely to have these assets itself. As a result, it will be necessary for the state commission and the third party to work with the facilities-based CLECs in the state. Any CLEC selected to participate in the test should have sufficient spare facilities to allow the third party to port numbers and connect unbundled loops to the CLEC's switch. To eliminate any carrier-specific anomalies, it would be useful if more than one CLEC allocated facilities to the testing process.

In addition, because the testing process should not jeopardize an actual customer's service, a number of "test lines" will be needed to test repair, restoration, call performance and billing. Active test lines can be obtained by using CLEC employees, ILEC employees, new lines provisioned to a location(s) accessible to the third party, or non-critical second lines established for the test purposes.[28] What is important, however, is that the third party have the access it will need to verify that what was ordered was accurately provisioned.

It may also be useful to augment the active test lines with a "test-bed" consisting of working numbers in a representative cross-section of the ILEC's switches throughout the state. These numbers would not have actual loops connected to them, but would be available to test the

[28] In no case should a customer's service be impacted by this testing. If employees of either the ILEC or the CLECs are used as test participants, then these employees must understand that they are an integral part of the test and will be called upon by the third party to validate their service features and to place specific test calls.

provisioning systems in the ILEC switch for resold service and the unbundled local switching element. The third party should also have access to the ILEC's switch software verification tools to confirm correct provisioning in the switch software for the orders the third party issued on test-bed numbers.

D. Defining the Order Types

One test parameter that should be developed thoroughly is the list of service orders that will be processed during the course of the test. Of course, each of the entry options a CLEC might use to offer a competitive service should be tested. These options include, but are not limited to, resold service (including resold private line services), the unbundled network element platform, unbundled loops of all types, network element combinations other than the platform (such as extended loops), local number portability, and operator and directory assistance services.

For each of these entry strategies, the test should consider the full range potential orders. Some examples include:[29]

[29] This is a representative list that is not intended to be exhaustive. Also, not all activities on this list are applicable to every entry strategy. The important point is that the parties should establish as comprehensive a list as possible so that the test can be structured accordingly.

* Orders for different services
    * Traditional POTS services (business and residential)
    * ISDN service
    * Centrex service
    * xDSL service
    * multi-point private lines
* Orders for different features and capabilities
    * adding/removing screening options on a customer's line
    * adding/removing features on a customer's line
    * partial migration of a customer's service
    * new line installations
    * hunt groups on business lines
* Different order types
    * changing due dates
    * expedited orders
    * order cancellations
    * telephone number changes
    * enhanced directory listing
* Different carrier/customer actions
    * existing ILEC customer moving to a CLEC
    * existing CLEC customer changing locations
    * existing CLEC customer moving to a different CLEC
    * existing CLEC customer moving back to the ILEC

The test should also be structured to include a representative mix of residential lines, small business lines and large business lines.

E. Defining Maintenance, Repair and Emergency Restoration Simulations

The ILEC's maintenance and repair processes and capabilities need to be fully tested to assure that the ILEC is capable of receiving a repair request from the CLEC, acknowledge the receipt of the request, perform the required maintenance activity within the interval agreed to by the ILEC, and provide information to the CLEC on the status of any given maintenance request. This is a particularly important component of the third party test because the success of the CLEC's quality commitment to its customers will depend, in part, on the ILEC's ability to quickly and efficiently respond to a CLEC maintenance request.

To test the ILEC's repair and restoration systems, the third party should randomly initiate trouble reports. Ideally, the third party should create actual troubles on working test lines to make an assessment of the ILEC's ability to respond to a trouble report, locate the trouble and fix the problem.[30] Troubles that can easily be introduced are:

* an "open" on the main distribution frame,[31]

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[30] Without the introduction of actual troubles on the test lines, the third party would only be able to test the ILEC's ability to *receive* trouble reports from the CLECs and to provide status information. It is just as important, however, to confirm the ILEC's ability to diagnose and *repair* the trouble as it is to confirm that the ILEC can report its status.

[31] An "open" refers to a break in a circuit.

* a "short" on the main distribution frame,[32]
* an open or short on the CLEC's collocated frame or at the POT frame,
* noise on the line, and
* echo on the line.

Additionally, when the CLEC purchases unbundled local switching from the ILEC, the CLEC's ability to use the mechanized loop testing (MLT) capability of the unbundled switch is a critical component of the maintenance portion of the third party test. Without this capability, the CLEC will not be able to proactively test its customers' loops in the same manner as the ILEC, a clear requirement of nondiscriminatory access.

F. Testing the Adequacy of Billing Systems

All aspects of the ILEC's billing capabilities need to be tested to verify that the ILEC can meet its obligations to: (a) render the CLEC an accurate bill, and (b) provide the CLEC with the usage data the CLEC will need to render accurate bills to its customers. The following are some of the critical billing requirements that need to be verified by the third party:

[32] A "short" occurs when a connection is established accidentally in a circuit at a location where no such connection should occur.

* Is the ILEC capable of rendering an accurate wholesale bill to CLECs for the resold services they are purchasing?

* Is the ILEC capable of rendering the CLECs an accurate bill for the unbundled elements that the CLECs purchase? This determination must include the usage sensitive billing of elements such as local switching and shared transport, as well as flat-rated elements such as the loop and the switch port.

* Is the ILEC capable of providing the CLEC with the usage records it needs to bill its end users?[33]

* Is the ILEC capable of accurately billing for reciprocal compensation?

* Is the ILEC capable of providing CLECs using the unbundled switch network element with the data necessary for the *CLEC* to bill access and reciprocal compensation (unless bill and keep applies)?

* If the ILEC cannot properly record the usage on any usage sensitive rate elements (i.e., terminating unbundled local switching, terminating intraLATA access and shared transport[34]), has the ILEC developed the ability to estimate this usage through the use of factors? If factors are used, the third party should audit these factors for accuracy and completeness.

Finally, to meaningfully evaluate the ILEC's billing capabilities, it is important that the third party test be conducted for a minimum of three complete billing cycles.

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[33] When the CLEC uses service-resale or unbundled local switching, it must obtain its billing information from the ILEC.

[34] Shared transport typically involves both direct and tandem routed call completion, depending upon network usage at any point in time. As a result, shared transport is typically priced based on an assumed traffic pattern.

G. Conducting the Test

Before the test is actually conducted, a final test plan should be prepared and made available to interested parties for their review and input. The final test plan should include: (a) a full description of all the test scenarios that are to be conducted, (b) the expected outcome of each scenario, and (c) the number of times each scenario will be replicated. It should also include the type of test calls that will be made to generate billing records, the types of maintenance troubles that will be reported, and a post-test verification plan to assure that all of the required provisioning, maintenance and billing activities were actually performed.

In addition, the final test plan should outline its *expectations*, as well as report the actual *results*, for the following activities:

* the time to establish the system interface;
* the time to certify the interface;
* the time to conduct all of the pre-ordering, ordering and provisioning transactions required; and
* the time to test the maintenance process.

To the maximum extent possible, the third party's test procedures should mirror the actions of a CLEC attempting to enter the market. To simulate this, the third party should follow the same steps and include the same activities as an actual CLEC, including:

* Using the pre-order process to obtain information typically required by the CLEC. Such information includes obtaining the customer service records, feature availability, address validation, telephone number reservation, loop qualification, and, where appropriate, dispatch scheduling.

* Ordering service using the agreed upon test plan scenarios. Ordering activity should include issuing the order, supplementing an existing order, canceling an order, receiving order confirmations, and receiving notification of order completions.

* Service provisioning with particular attention to coordinated hot cuts, local number portability, extended loop arrangements, partial migrations, use of all network elements (individually and in combination), special services, and updating appropriate databases (e.g. Line Information Database (LIDB), Automatic Location Identification (ALI), and Directory Listings).

* Trouble reporting, status and clearance.

* Bill receipt and verification.

* Receiving and processing billing data records for end user billing, access billing and, where appropriate, reciprocal compensation billing.

As previously indicated, the test should involve the actual provisioning of service using every form of CLEC transaction that can be expected. After the third party receives a completion notice from the ILEC, the third party should validate that the order was actually provisioned with all the features and capabilities submitted on the order. This validation should include checks such as making sure that the features requested were actually provisioned, that the code screening and class of service on the lines are correct, and that the directory listings were populated correctly.

During the course of the test, the third party should intentionally introduce errors on a number of its transactions to test the ability of the ILEC to identify these errors and send back a rejection notice to the CLEC. The third party needs to make an assessment of both the ability of the ILEC to *identify* these errors, and the quality of the *information* on the rejection notice to help the CLEC correct the problem. The test should also include mid-stream changes to a number of orders to determine how well the ILEC responds to order changes once the original order is in the pipeline.

In addition to weeks of routing testing of the various order types the third party should devote a number of days to high volume "stress" testing of the ILEC systems. While the appropriate order volume may vary by market, it should involve at least several thousand

transactions per day. Importantly, in order to simulate the likely spikes in demand in a competitive marketplace, this volume test should be "blind" so the ILEC does not know which days it will occur.

The third party also needs to determine which of the various test scenarios that it submits flow through the ILEC's systems and processes without requiring manual intervention by the ILEC's provisioning centers. For those orders that do fall-out and are routed to internal ILEC centers for manual processing, the third party needs to evaluate the timeliness and quality of the manual procedure the ILEC has established to handle this activity.

As noted above, one of the fundamental purposes of an independent third party test is to find and fix any OSS problems that may exist in order to permit competition in the local market. If OSS problems are found and changes or corrections have to be made by the ILEC during the course of the test, there should be sufficient "regression" testing (retesting) by the third party to ensure both that the problem was fully resolved and that other problems were not inadvertently created in the process.

Test calls should be manually logged, recording specific information such as the date and time the test call was made, the number dialed, the duration of the call and the outcome of the

call. These manual logs should be compared to the billing records received from the ILEC to match them for completeness. Finally, the test should include an appraisal of the quality of support and the level of knowledge of the ILEC personnel staffing its CLEC support centers. Support assessments should include "help desk" hot line response times, quality of support provided by the help desk, escalation procedures and the effectiveness of the escalation process.

The last step in the testing process should be the final report. This report should reflect each test process and scenario agreed to in the planning stage, the metric used to evaluate performance, the number of instances observed and the actual results based on the data gathered by the third party. If the ILEC took steps to fix or improve upon a process during the course of the test, this should also be documented in the final report. Of course, the final report (as well as any intermediate reports) should be publicly available.

H. Comparing Test Results to ILEC Performance Measures

One of the central objectives of the third party testing process is to determine whether an ILEC is providing nondiscriminatory access to its OSS and, through its OSS, to its underlying network. Reaching this conclusion requires two parallel measures. First, the third party test should provide quantified metrics on the performance of the OSS when used by CLECs and,

second, these metrics should be compared to measures of the ILEC's own access to these systems and facilities.[35]

A starting point for identifying a complete set of metrics is the list of performance measures developed by the Local Competition User Group (LCUG). These measures are set forth in the Measurement Detail Section of the LCUG's Service Quality Measures Document, Version 7.0, dated August 28, 1998. This document represents the consensus expert advice of a number of competitive entrants, and provides a valuable template for establishing test metrics.

A sample of the test metrics described in the LCUG analysis include:

* pre-order system response time,
* accuracy of pre-order request data,
* timeliness of the firm order confirmation responses,
* timeliness of the completion notice responses,
* timeliness of trouble report acknowledgments,
* timeliness of trouble report clearances,

[35] It is useful here to point out how much easier this process would be if the ILEC's retail operations were completely separated from its wholesale obligations in a manner the guaranteed that all providers used the exact same systems and procedures to access the ILEC's network. As noted earlier, however, the issues associated with such separation are beyond the limited scope of this paper.

* response time to trouble report status requests,
* accuracy of bills received, and
* timeliness of bills received.

The third party must have the ability to collect the critical data that will be needed to evaluate the ILEC's test performance and make recommendations on areas of improvement. This data includes information that will be collected by the third party itself, as well as others. Examples of data sources that need to be considered by the third party include:

* system records collected by the third party from the electronic interface it has established with the ILEC,
* system records of the ILEC reporting its access to internal systems and facilities,
* data gathered from CLEC systems where those systems are being used as the interface vehicle,
* manual records kept by the third party's employees and agents, and
* manual records kept by the test participants (employees of the LECs).

It is most likely that the third party will rely on a combination of the above data collection methods to gather all the information it needs to evaluate the test outcome. In those instances

where statistics are gathered from ILEC (or CLEC) systems, the third party should evaluate how the data is collected to make sure that it can be used to reliably measure performance. It is also critical for ILEC baseline measures and definitions to be determined in advance of the third party test to ensure that the ILECs and other parties have common definitions and understand the various performance measures in the same way.

In some areas, there is no direct ILEC analog to the activity being assessed. For instance, the ILEC's interface to its OSS is pre-established and it is impossible to measure the deficiencies in the information available to CLECs to establish comparable interfaces. Because of this inherited differential, it is especially important that the test qualitatively address all issues involving the development of the interface and quantitatively measure the time needed to establish, certify and make operational the interface.

IV. Conclusion

An independent third party test of an ILEC's OSS is a major step in the process of developing -- and later confirming -- that an ILEC has provided CLECs with the access they need to compete in the local market. CompTel believes that such testing will ultimately improve the OSS that CLECs receive, as well as provide a valuable verification tool to regulators judging

ILEC compliance with the Act.

Designing a meaningful third party test is a complicated process -- but only because the very nature of local competition is complicated itself. Because an appropriately structured third party test must duplicate many of the steps of entry, the third party test should expect to confront the same barriers and difficulties that an actual competitor will encounter. A successful third party test will both reduce these barriers and provide a path for the actual entrants that will follow.

In closing, a third party test can be an important step in the process of creating nondiscriminatory OSS because it provides a mechanism to test, and therefore *improve,* the OSS that will be used by actual entrants. It is this practical value of the third party testing process that is most beneficial to the competitive environment. For this reason, CompTel recommends that state commissions design and conduct the comprehensive third party test procedure described above.

Appendix A

Comparing the New York and California Test Plans

The following table compares the test underway in New York to the test plan proposed by Pacific Bell (released January 11, 1999),[1] using many of the key test parameters identified in the paper.[2] The time-sensitive nature of the information in this table means that its accuracy will diminish with time. As such, the table is most useful as a summary guide.

Legend:

Y = parameter is covered in test.
L = parameter is covered on a limited scale.
U = it is unknown or unclear if parameter is covered in scope of test.
Not covered = parameter not covered in the scope of the test.

Test Parameter	New York	California
Vendor Selection and Test Plan Development Process		
Test plan developed by 3rd party.	Y	Pacific Bell test plan proposal appears to have been developed by Pacific Bell with little input from other parties.
Test plan development includes state commission input.	Y	
Test plan development included CLEC input.	L	
Test conducted and managed by the 3rd party.	Y	L[3]

[1] The following comparison generally shows that the New York test plan is more comprehensive than that proposed in California. It is important to appreciate, however, that the New York plan has been reviewed and approved by the New York Commission, while the California plan is simply a *proposal* of the ILEC. (Pacific Bell)

[2] Third party test plans are also being developed in Texas and Pennsylvania, and the third party test vendors have been selected by these states (Bellcore in Texas and KPMG in Pennsylvania). Because of the limited data currently available for these tests, however, these states have not been included in the analysis.

[3] The proposed plan in California calls for testing by Pacific Bell with "participation by the CPUC and an independent third party." It is unclear from Pacific Bell's OSS test plan proposal what level of participation the CPUC and the third party will have.

Test Parameter	New York	California
Testing Interface Development		
Tests the development of a systems interface.	Y	Not Covered
Tests for system flow-through and non-flow through capabilities.	Y	U
Tests the full range of interfaces a CLEC might use to exchange data with the ILEC.	Y	Not Covered
Assesses the ILEC's interface backup and restoration process.	U	U
Tests the systems interface certification process.	Y	Not Covered
Tests the adequacy of the ILEC's documentation for system development.	Y	Not Covered
Test the adequacy of the ILEC's documentation for business rules and order development.	Y	Not Covered
Actions Included in Test		
Tests pre-ordering.	Y	L
Tests ordering.	Y	L
Tests provisioning.	Y	L
Tests maintenance and repair.	Y	Not Covered
Tests all billing capabilities, including billing for resold services, unbundled network elements, and the adequacy of the data provided to the CLEC for its access and end user billing.	Y	L
Test includes incorrect orders.	Y	Not Covered
Test includes supplementing orders that are already being processed in the pipeline.	Y	Not Covered
Test includes cancelling orders in the pipeline.	Y	Not Covered

Test Parameter	New York	California
Comprehensiveness of Test Structure		
Tests all methods of CLEC market entry including resale, stand-alone unbundled elements, and combinations of unbundled elements (including the platform, hot-cuts and LNP conversions).	Y	L
Allows sufficient time to perform a comprehensive test.	Y	U
Allows for correction and retesting.	Y	U
Test implementation involves CLEC participation.	Y	Not covered
Test implementation involves state commission participation and oversight.	Y	L
Test utilizes working lines.	Not Covered	L[4]
Test includes test-bed resources.	Y	Not Covered
Test uses actual CLEC facilities.	Y	Not Covered
Test involves sufficient volumes to determine if systems are ready for commercial usage.	Neither test will involve sufficient volumes to determine if systems are ready for commercial usage.	
Testing interval is sufficient to allow for verification of billing data.	L	U
Testing interval is sufficient to allow for post-testing validation of the orders processed.	Y	U

[4] One area where the proposed California test is superior to the test in New York is its use of actual working lines. However, the problem with the California proposal in this regard is the scope and size of the test, involving only 300 lines across six central offices (50 orders per central office). Other concerns are that the pool of resources will involve Pacific Bell employees and the mix of orders is heavily slanted to residential (80% residential and 20% business).

Test Parameter	New York	California
Comprehensiveness of Test Structure (continued)		
Test involves the various order types that an ILEC can expect to receive from CLECs including database updates, feature changes, line screening, number portability, etc.	Y	L[5]
Test includes the placing of actual test calls for billing accuracy.	L	Not covered
Test assesses the quality of support the 3rd party receives from ILEC personnel staffing CLEC support centers.	Y	Not covered
Test results compared to agreed upon ILEC performance measures.	Y	L[6]
Final report developed by 3rd party.	Y	Not covered

[5] The Pacific Bell proposal includes a broad category of ordering and provisioning options such as vertical features and various line screening options. However, the test falls seriously short of testing other equally (or arguably more) critical ordering and provisioning capabilities such as local number portability, loop hot-cuts and directory listings. The failure to include the first two of these areas is particularly troubling because, if not performed properly, they could lead to customer service outages.

[6] Although Pacific Bell proposes some performance measures to judge the test, the fact is that the test scope and size is too small and narrow to accurately measure Pacific Bell's performance in many key areas. For example, there is no plan to test Pacific's ability to deliver access billing data to the CLEC's when the CLEC is using Pacific's unbundled local switch. At the end of this test, neither the third party nor the state commission will be able to determine if Pacific is able to meet this obligation.